What is claimed is:

1. A method of overexpressing a mammalian RNase H in a cell, comprising inserting into said cell a vector encoding a mammalian RNase H under conditions in which said mammalian RNase H is expressed in the cell, wherein said mammalian RNase H is expressed at levels above endogenous levels for said RNase H in said cell.

2. The method of claim 1 wherein said mammalian RNase H is a mammalian RNase H1.

3. The method of claim 1 wherein said mammalian RNase H is a mammalian RNase H2.

4. The method of claim 1 wherein said mammalian RNase H is a human RNase H.

5. The method of claim 1 wherein said mammalian RNase H is a wild type RNase H.

6. The method of claim 1 wherein said mammalian RNase H is a mutant RNase H.

7. The method of claim 6 wherein the mutant RNase H retains RNase H activity.

8. The method of claim 6 wherein the mutant RNase H is inactive.

9. The method of claim 8 wherein the inactive mutant is a dominant negative mutant.

10. The method of claim 1 wherein said cell is a human cell.

11. The method of claim 1 wherein the vector is an adenovirus vector.

12. A method of overexpressing a mammalian RNase H in a mammal, comprising inserting into said mammal a vector encoding a mammalian RNase H under conditions in which said mammalian RNase H is expressed in the mammal, wherein said mammalian RNase H is expressed at levels above endogenous levels for said RNase H in said mammal.

13. The method of claim 12 wherein said mammalian RNase H is a mammalian RNase H1.

14. The method of claim 12 wherein said mammalian RNase H is a mammalian RNase H2.

15. The method of claim 12 wherein said mammalian RNase H is a human RNase H.

16. The method of claim 12 wherein said mammalian RNase H is a wild type RNase H.

17. The method of claim 12 wherein said mammalian RNase H is a mutant RNase H.

18. The method of claim 17 wherein the mutant RNase H retains RNase H activity.

19. The method of claim 17 wherein the mutant RNase H is inactive.

20. The method of claim 19 wherein the inactive mutant is a dominant negative mutant.

21. The method of claim 12 wherein the vector is an adenovirus vector.

22. A dominant negative mutant form of human RNase H.

23. The dominant negative mutant form of human RNase H of claim 22 which is a dominant negative form of human RNase H1.

24. The dominant negative mutant form of human RNase H of claim 22 which is a dominant negative form of human RNase H2.

25. An antisense compound 8 to 80 nucleobases in length targeted to a nucleic acid molecule encoding human RNase H1, wherein said compound specifically hybridizes with said nucleic acid molecule encoding human RNase H1 and inhibits the expression of human RNase H1.

26. The compound of claim 25 comprising 12 to 50 nucleobases in length.

27. The compound of claim 26 comprising 15 to 30 nucleobases in length.

28. The compound of claim 25 comprising an oligonucleotide.

29. The compound of claim 28 comprising an antisense oligonucleotide.

30. The compound of claim 28 comprising a DNA oligonucleotide.

31. The compound of claim 28 comprising an RNA oligonucleotide.

32. The compound of claim 28 comprising a chimeric oligonucleotide.

33. The compound of claim 38 wherein at least a portion of said compound hybridizes with RNA to form an oligonucleotide-RNA duplex.

34. The compound of claim 25 having at least one modified internucleoside linkage, sugar moiety, or nucleobase.

35. The compound of claim 25 having at least one 2'-O-methoxyethyl sugar moiety.

36. The compound of claim 25 having at least one phosphorothioate internucleoside linkage.

37. The compound of claim 25 having at least one 5-methylcytosine.

38. The compound of claim 25 which inhibits expression of human RNase H1 by at least 30%.

39. A method of inhibiting the expression of human RNase H1 in a cell or tissue comprising contacting said cell or tissue with the compound of claim 25 so that expression of human RNase H1 is inhibited.

40. A kit or assay device comprising the compound of claim 25.

41. The compound of claim 25, wherein said compound comprises SEQ ID NO: 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 93, 94, 95, 97, 98, 99, or 100.

42. The compound of claim 25, wherein said compound comprises an antisense nucleic acid molecule that is specifically hybridizable with a 5'-untranslated region (5'UTR) of the nucleic acid molecule encoding human RNase H1.

43. The compound of claim 25, wherein said compound comprises an antisense nucleic acid molecule that is specifically hybridizable with a start region of the nucleic acid molecule encoding human RNase H1.

44. The compound of claim 25, wherein said compound comprises an antisense nucleic acid molecule that is specifically hybridizable with a coding region of the nucleic acid molecule encoding human RNase H1.

45. The compound of claim 25, wherein said compound comprises an antisense nucleic acid molecule that is specifically hybridizable with a 3'-untranslated region of the nucleic acid molecule encoding human RNase H1.

46. A method of modulating the potency of one or more antisense compounds in a mammalian cell comprising modulating the amount of mammalian RNase H1 in said cell.

47. The method of claim 46 wherein antisense potency is increased by increasing the amount of active mammalian RNase H1 in the cell.

48. The method of claim 47 wherein the amount of mammalian RNase H1 in the cell is increased by overexpression of said RNase H1 in the cell.

49. The method of claim 48 wherein said RNase H1 is overexpressed via a viral vector.

50. The method of claim 49 wherein said viral vector is an adenovirus vector.

51. The method of claim 46 wherein antisense potency is decreased by decreasing the amount of active mammalian RNase H1 in the cell.

52. The method of claim 51 wherein the amount of active mammalian RNase H1 in the cell is decreased by reducing the expression of RNase H1 in the cell.

53. The method of claim 52 wherein expression of RNase H1 in the cell is reduced by contacting said cell with a compound of claim 31.

54. The method of claim 46 wherein said cell is a human cell.

55. The method of claim 46 wherein said cell is a mouse cell.

56. The method of claim 46 wherein said RNase H1 is a human RNase H1.

57. The method of claim 47 wherein antisense potency is decreased by expression of a dominant negative mutant form of RNase H1 in the cell, whereby total RNase H1 activity in the cell is decreased.

58. A method of modulating the potency of one or more antisense compounds in a mammal comprising modulating the amount or activity of mammalian RNase H1 in one or more cells, tissues or organs of said mammal.

59. The method of claim 58 wherein modulating is increasing the amount of mammalian RNase H1 in one or more cells, tissues or organs of said mammal.

60. The method of claim 59 wherein antisense potency is increased by increasing the amount of active mammalian RNase H1 in one or more cells, tissues or organs of said mammal.

61. The method of claim 60 wherein the amount of mammalian RNase H1 in the cells, tissues or organs of said mammal is increased by overexpression of said active RNase H1 in the cells, tissues or organs.

62. The method of claim 61 wherein said RNase H1 is overexpressed via a viral vector.

63. The method of claim 62 wherein said viral vector is an adenovirus vector.

64. The method of claim 58 wherein modulating is decreasing the amount or activity of mammalian RNase H1 in one or more cells, tissues or organs of said mammal.

65. The method of claim 64 wherein antisense potency is decreased by decreasing the amount of mammalian RNase H1 in the cells, tissues or organs.

66. The method of claim 65 wherein the amount of mammalian RNase H1 in the cells, tissues or organs is decreased by reducing the expression of RNase H1 in the cells, tissues or organs.

67. The method of claim 66 wherein expression of RNase H1 in the cells, tissues or organs is reduced by contacting said cells, tissues or organs with a compound of claim 31.

68. The method of claim 58 wherein said cells, tissues or organs are human cells, tissues or organs.

69. The method of claim 71 wherein said cell are mouse cells, tissues or organs.

70. The method of claim 71 wherein said RNase H1 is a human RNase H1.

71. The method of claim 64 wherein antisense potency is decreased by expression of an inactive form of RNase H1 in the cells, tissues or organs, whereby total RNase H1 activity in the cells, tissues or organs is decreased.

72. The method of claim 58 wherein the cell, tissue or organ is the liver.

73. A method of modulating the potency of one or more antisense compounds in a mammalian cell comprising overexpressing a mammalian RNase H1 in said cell.

74. The method of claim 73 wherein the antisense potency is increased and the mammalian RNase H1 is an active form of RNase H1.

75. The method of claim 73 wherein the antisense potency is decreased and the mammalian RNase H1 is an inactive form of RNase H1.

76. The method of claim 75 wherein the inactive form of RNase H1 is a dominant negative mutant form of RNase H1.

77. The method of claim 73 wherein the RNase H1 is overexpressed via a vector.

78. The method of claim 77 wherein the vector is an adenovirus vector.

79. The method of claim 73 wherein the mammalian RNase H1 is a human RNase H1.

80. A method of modulating the potency of one or more antisense compounds in a mammal comprising overexpressing a mammalian RNase H1 in a cell, tissue or organ of said mammal.

81. The method of claim 80 wherein the antisense potency is increased and the mammalian RNase H1 is an active form of RNase H1.

82. The method of claim 80 wherein the antisense potency is decreased and the mammalian RNase H1 is an inactive form of RNase H1.

83. The method of claim 82 wherein the inactive form of RNase H1 is a dominant negative mutant form of RNase H1.

84. The method of claim 80 wherein the RNase H1 is overexpressed via a vector.

85. The method of claim 84 wherein the vector is an adenovirus vector.

86. The method of claim 80 wherein the mammalian RNase H1 is a human RNase H1.

87. A vector comprising a nucleic acid encoding a human RNase H polypeptide.

88. The vector of claim 87 wherein the human RNase H polypeptide is a human RNase H1 polypeptide.

89. The vector of claim 87 wherein the human RNase H polypeptide is a human RNase H2 polypeptide.

90. The vector of claim 87 wherein the human RNase H polypeptide is an active human RNase H polypeptide.

91. The vector of claim 87 wherein the human RNase H polypeptide is an inactive human RNase H polypeptide.

92. The vector of claim 91 wherein the inactive human RNase H polypeptide is a dominant negative mutant.

93. The vector of claim 87 which is a viral vector.

94. The vector of claim 93 which is an adenovirus vector.

95. A mammalian cell comprising the vector of claim 87.

96. The mammalian cell of claim 95 which is a human cell.

97. The mammalian cell of claim 95 which is a mouse cell.

98. The mammalian cell of claim 95 which expresses a human RNase H.

99. The mammalian cell of claim 98 which overexpresses human RNase H.

100. A mammal comprising the vector of claim 87.

101. The mammal of claim 101 which is a mouse.

102. A substantially isolated and purified human RNase H which is 60 -70 kDa in size and which cleaves an RNA-DNA duplex in the presence of 10 mM Mg^{2+} or 0.5 mM Mn^{2+}, wherein said RNase H is not recognized by antibody to human RNase H1 peptide fragments corresponding to amino acids 49-65 of the N-terminal region or amino acids 231-249 of the C-terminal region of SEQ ID NO: 1, or by antibody to full length human RNase H2.

103. A method of cleaving an RNA/DNA duplex comprising incubating said RNA/DNA duplex with a human RNase H of claim 102.

104. A method of isolating and purifying a cloned and expressed mammalian RNase H2 so that said RNase H2 retains its cleavage activity for a RNA/DNA duplex substrate, comprising the steps of:

a) transfecting a cell with a vector encoding a mammalian RNase H2;

b) overexpressing said mammalian RNase H2 in said cell;

c) Providing an antibody specific for said mammalian RNase H2;

d) Immunoprecipitating said RNase H2 from said cells using said antibody specific for said RNase H2 under conditions in which said mammalian RNase H2 retains cleavage activity for a RNA/DNA duplex substrate.

105. The method of claim 104 wherein said transfected cell is a mammalian cell.

106. The method of claim 104 wherein said mammalian RNase H2 is a human RNase H2.

107. A substantially isolated and purified cloned and expressed mammalian RNase H2 which retains cleavage activity for a RNA/DNA duplex substrate.

108. The mammalian RNase H2 of claim 107 which is a human RNase H2.